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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/768,580	01/23/2001	John F. McMahon	42390.P5142D	3565

7590

10/23/2002

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EXAMINER

CHAMBLISS, ALONZO

ART UNIT PAPER NUMBER

2827

DATE MAILED: 10/23/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/768,580

Applicant(s)

MCMAHON, JOHN F.

Examiner

Alonzo Chambliss

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 October 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

1. The RCE and amendment C both filed on 10/7/02 has been fully considered and made of record in Paper No. 10 and 11, respectively.

Response to Arguments

1. Applicant's arguments with respect to claims 21-27 have been considered but are moot in view of the new ground(s) of rejection. Furthermore, the arguments are further moot based on the 112 first and second paragraph rejections.

Continued Examination Under 37 CFR 1.114

3. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/7/02 has been entered.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 21-27 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In claim 1, the phrase **with direct connections between said first chip package and said plurality of shelves** constitutes new matter since the specification page 16 lines 9-14 states that **die 124 (i.e. the first chip package) is electrically connected to the package 93 via wire bonds 126**. Now the embodiment that applicant is making claim for in Claim 21 is represented by Fig. 7 not Figs. 1, 3, and 5 since Claim 21 requires the first chip package to be placed on a first shelf not a heat slug 24. Therefore, there is no support for a **direct connection between the first chip package and the plurality of shelves**.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 21-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. In Claim 21, the phrase "with direct connections between said first chip package and said plurality of shelves" is vague and indefinite since it is not clear from the specification nor the Fig. 7 how direct connections between the first chip package and the plurality of shelves can be established.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 21, 26, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu (U.S. 5,633,530) in view of Ueda et al. (U.S. 5,701,033).

With respect to Claim 21, Hsu discloses placing a first chip package 13a on a first shelf, which is electrically attached to a plurality of shelves, since the plurality of shelves, are electrically attached to a pin 20. Pins 20 are electrically attach the multi-chip package to an external device, which means that the plurality of shelves are in electrical communication with each other by way pins 20 resulting in the first chip package 13a being also in electrical communication with the plurality of shelves. A second chip package 13b is electrically attached to the second shelf (see Fig. 1). Hsu fails to disclose direct connections between the first chip package and the plurality of shelves. However, Ueda discloses direct connections between the first chip package 1 and the plurality of shelves (see Figs. 2, 4, 6, and 8). Hsu and Ueda have substantially the same elements in substantially the same environment. Furthermore, Hsu discloses other types of packages (i.e. ball grid array) can be used in the invention within the spirit of his invention (see col. 2 lines 55-59). Therefore, it would have been obvious to incorporate the direct connection between the first chip package and the plurality of shelves with the process of Hsu, since connection to a plurality of shelves would

increase the number of electrical signals between the first chip package and an external device as taught by Ueda.

With respect to Claim 26, Hsu discloses the first chip package 13a is wire bonded to the plurality of shelves through pins 20 (see Fig. 1).

With respect to Claim 27, Hsu discloses the second chip package 13b is wire bonded to the plurality of shelves by pins 20 (see Fig. 1).

11. Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu (U.S. 5,633,530) as applied to claim 21 above, and further in view of Chia et al. (U.S. 5,563,446).

Hsu disclose covering the package above the second chip package with a lid 16b (see Fig. 1). Hsu fails to disclose filling the package above the second chip package with an encapsulant. However, with respect to Claims 22 and 23, Chia discloses filling the package above a chip with an encapsulant 188 or a lid 288. The encapsulant when added to the package taught by Hsu would seal the open cavity below the second shelf to protect the first chip package. Therefore, it would be obvious to incorporate the encapsulant with the process of Hsu since the encapsulant would protect the die and its wire bond leads from outside contamination as taught by Chia.

12. Claim 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu (U.S. 5,633,530) as applied to claim 21 above, and further in view of Wenzel et al. (U.S. 6,150,724).

Hsu discloses two semiconductor chips one above the other (see Fig. 1). Hsu fails to disclose a CPU chip package on the first shelf and a memory cache on the

second shelf. However, with respect to Claim 24 and 25, Wenzel discloses semiconductor chip can be made of the same process or different process. For example, the semiconductor chip can be a CPU, SDRAM, DRAM, etc. (see col. 6 lines 60-67 and col. 7 lines 1-18). Therefore, it would have been obvious to incorporate CPU and SDRAM chips with the process of Hsu, since the combination of the CPU and the SDRAM would increase input and output signal counts of the integrated product and reduce the IC power consumption as taught by Wenzel.

The prior art made of record and not relied upon is cited primarily to show the process of the instant invention.

Conclusion

13. Any inquiry concerning the communication or earlier communications from the examiner should be directed to Alonzo Chambliss whose telephone number is (703) 306-9143. The fax phone number for this Group is (703) 308-7722 or 7724.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-7956.

Albert W. Paladini 10-21-02
ALBERT W. PALADINI
PRIMARY EXAMINER

AC

AC/October 19, 2002